

SYSTEM AND METHOD FOR DETECTING FLOW IN A MASS FLOW CONTROLLER

Abstract of the Disclosure

5 Systems and methods are provided for detecting flow in a mass flow
controller (MFC). The position of a gate in the MFC is sensed or otherwise
determined to monitor flow through the MFC and to immediately or nearly
immediately detect a flow failure. In one embodiment of the present invention, a
novel MFC is provided. The MFC includes an orifice, a mass flow control gate, an
10 actuator and a gate position sensor. The actuator moves the control gate to control
flow through the orifice. The gate position sensor determines the gate position
and/or gate movement to monitor flow and immediately or nearly immediately
detect a flow failure. According to one embodiment of the present invention, the
gate position sensor includes a transmitter for transmitting a signal and a receiver for
15 receiving the signal such that the receiver provides an indication of the position of
the gate based on the signal received. Other embodiments of the gate position
sensor are described herein, as well as systems and methods that incorporate the
novel MFC within a semiconductor manufacturing process.